Received April 24, 1766.

XVIII. *An Account of an uncommon large Hernia, in a Letter from Dr.* George Carliſle, *to the Right Rev. the Lord Biſhop of* Carliſle, *F. R. S.*

Carliſle, April 18, 1766.

My Lord,

Read May 14, 1766. WHEN I ſhewed you the drawing of an uncommon large hernia at Roſe, you were pleaſed to ſay, you ſhould be glad to have the hiſtory of it, and of what occurred in examining the body after death, in order to communicate it to the Royal Society: from that time I determined to draw out the caſe, but have been prevented by various other engagements, till now, that I take the liberty to preſent it to your Lordſhip; and ſhall be extreamly rejoiced if it prove agreeable to you, and the learned body; with it I incloſe an outline of the drawing, TAB. VII. Fig. 1. and an explanation, which may make the deſcription more intelligible. I was ſorry, that for want of a proper draftſman, my good friend the captain being out of town, I could not have the ſituation of the ſtomach, with the other parts left in the abdomen, taken; but my painter was ſo ſqueamiſh, it was with difficulty we got the outward appearance taken from the dead body.

We

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We have had the drieſt ſeaſon here I have known; thro' the whole of laſt year, only 19.705 inches of rain fell; and in the three laſt months of this, only 1.689 inches, including what melted from the great fall of ſnow on the 11th and 12th of February, into my receiver: the ſnow lay then 9 inches perpendicular, upon a level bed in my garden. I am, with great reſpect,

My Lord,

Your Lordſhip's much obliged,

and moſt obedient Servant,

George Carliſle.

JOHN HALLOWDAY, an out-penſioner of Chelſea, aged near 80, having entered very young into the army, and undergone ſeveral hardſhips in the campaigns under the Duke of Marlborough, upon his return to England from Flanders, at the concluſion of the war, firſt perceived a ſmall tumor in the right ſide of the ſcrotum and groin. This he carefully concealed, to avoid the ſcoffs of his companions, and leaſt it might be the occaſion of his diſcharge, which he dreaded, and wanted to avoid; as he found no other inconvenience from it, but what its bulk occaſioned, nor ever had pain, vomiting, obſtructions to ſtools, or any other ſymptoms of a ſtrangulated hernia. From that time, however, it continued to increaſe in bulk; and from that, and its weight, grew daily more inconvenient to him, inſomuch, that about the year 1725, being

unable to go through the duty of a ſoldier, he was admitted to the out-penſion of Chelſea hoſpital. Its ſize was then ſuch, that he was obliged to have a particular bag made in the forepart of his breeches, to enable him to carry about its weight, and always wore a leathern apron to conceal its figure. For ſix or ſeven years before his death, the weight and bulk of the hernia had made ſuch an alteration, in the outward appearance of the parts about the ſcrotum, that the penis was entirely buried in the tumor; a ſmall oval opening only was left, out of which the urine was diſcharged: this opening was ſometimes excoriated, from the acrimony of the urine, as the penis could not be extracted to throw it off, nor the glans be made to appear by any endeavours: after death, it could be protruded no farther outwards, than as it is ſhewn in Fig. 2. A year or two before his death, after a cold, and fretting the part by too much walking, the urine had brought on a conſiderable inflammation, which mortified to a large extent, one conſiderable eſchar, formed upon the anterior and moſt depending part of the bag, one leſs on the right ſide where it touched the thigh, and a third behind; yet all caſt off and healed kindly, by the help of the bark, warm dreſſings, &c. Except from this accident, in the latter years of his life, he was not ſubject to any other complaints than are common at his years; ſuch as dimneſs of ſight, catarrhous coughs, ſhortneſs of breath upon motion, ſwellings of his legs occaſionally: and he wore off at laſt by a gentle decay, having all along had as good an appetite, and digeſtion, as could be expected at his time of life; regular diſcharges, both by ſtool and urine; very rarely vomitings, except from overloading

loading his ſtomach; purgatives, and every other medicine, operated as regularly upon him, as upon any other perſon. He was a well-made man, rather above the middle ſize; was as corpulent, and had as much ſtrength, as moſt of his years, until within a very little time of his death.

His caſe having nothing particular in it, but as far as the contents of the abdomen and ſcrotum were concerned; it was not thought neceſſary to carry the examination of his body farther than through them.

The large hernial bag I had meaſured, as exactly as I could, about a year before his death; and found its length, from the os pubis to the moſt depending point, 15 inches; its greateſt breadth, while it lay ſupported by the thighs, 17½ inches; and its greateſt circumference 34 inches: but in the body, the day after death, its length, from the pubis to the moſt depending part, was only 13 inches; its breadth, to the part where it fell in between the thighs, 12 inches; its circumference round the thick, or ſmalleſt part, where it deſcended from the pubis, 19 inches; and round its large circumference, 27 inches. It was covered with the common integuments of the ſcrotum; but at its lower and poſterior parts, the cellular membrane, or dartos, was reduced to an almoſt cartilaginous hardneſs, where the weight, both in ſitting, ſtanding, and lying, had the greateſt effect: the cicatrices alſo, where gangrenous ſloughs had been caſt off, were of an equal firmneſs, and hardneſs under the knife. The teſticle of the left ſide was plainly to be felt, at the prominent part, above, and to one ſide of the opening for the penis, not far from its natural ſituation: the right teſticle was obſcurely to be felt, a little above the loweſt

loweſt and anterior point of the bag. Beſides what appeared upon the front view of the bag, a large portion of it, like a ridge, extended backwards, where the ſpace betwixt the thighs allowed it more room; they being rather more concave than uſual, inwardly, towards each other; and more diſtant, from the conſtant preſſure they ſuſtained. The colour of the bag was the ſame as that of the other parts, except where the mortified ſloughs had been caſt off; where it was of a ſhining white. Upon opening the abdomen, the liver appeared rather large, and farther extended over the left ſide than uſual. The gall-bladder was ſmall, with a little diluted bile in it. None of the inteſtines appeared, but a portion of the colon, towards the anterior edge of the pelvis, on the left ſide; where it made two inflections, much in the way as the loweſt turns of the inteſtines are ſhewn to do, below the omentum, in Euſtach. TAB. IX. from theſe it went downwards, and backwards, into the pelvis, to make its laſt curve, and be continued into the rectum: which, with that laſt curve of the colon, was in its natural place and direction. The ſtomach, inſtead of an horizontal, had a longitudinal poſition; its large, and here upper extremity, being placed behind the left lobe of the liver, cloſe to the diaphragm, and its large convex ſide lay along the left ſide of the abdomen; it deſcended to nigh the creſt of the os ilium, from whence it turned over the inflection of the colon, before-mentioned, acroſs the pelvis, to the large hernial aperture, in the right ſide; within the verge of which, it ran downwards about an inch, then aſcended, and made a ſemicircular turn to the pylorus, which mounted towards the abdomen; from

thence the beginning of the duodenum made another turn, to deſcend into the hernial bag; immediately below which, viz. juſt within the opening of the hernial bag, the ductus communis choledochus entered it; and ſeemed the cauſe which kept it from falling further into the ſac. From this, the remainder of the duodenum, and all the other inteſtines, were entirely contained in the hernial bag, to nigh the extremity of the colon, before-mentioned. The duodenum, after entering the ſac, firſt ran a little downwards, and backwards, then horizontally, and laſtly upwards, to within the edge of the ſac, towards the abdomen; from thence the tegumen proceeded backwards and downwards, and then formed, with the ileum, pretty nigh their uſual convolutions, about the middle of the tumor, as they ſhould have done in the abdomen. The caecum had a very ſmall appendix, but was itſelf very large; as was the colon through its whole length, while contained in the ſac; that part of it, which returned into the pelvis again, being much ſmaller, even only of the dimenſions of the ſmaller inteſtines: the length of the colon too ſeemed more than uſual. The caecum began in the lower part of the bag, and from thence the colon kept pretty nigh the courſe it ſhould have kept, if the bag had been the abdomen, for a great part of its length; running up, from the caecum, along the right ſide of the bag, to nigh the pubis, and then croſſing over towards the left ſide, before the duodenum, to the left edge of the hernial aperture; at which place, ſlipping behind the lower extremity of the ſtomach, it appeared in the pelvis, croſſing over to its left ſide; from thence to follow the courſe before deſcribed. The pancreas lay in a longitu-

longitudinal direction, along the concave arch of the ſtomach, through its whole courſe; and was placed before the bodies of the vertebrae. The ductus choledochus, beſides its great length from the liver, to within the hernial bag, was of ſuch a width, as eaſily to admit a middle-ſized finger, being about 2¼ inches in circumference: in ſome parts of its courſe, it was little inferior in width to the gall bladder, in this ſame ſubject. The kidneys were rather ſmall, in general ſound, except that ſome few hydatides were here and there fixed upon their outward ſurface, and that two or three ſteatomatous tumors, of about the ſize of a pea, and white, were in the ſubſtance of each; but not riſing above their ſurface: they were each in their proper ſituation; the left lay behind the ſtomach, and was leſs, probably from the preſſure it was expoſed to. The ureters and bladder were in their uſual ſituation; the bladder was no way engaged in the hernia, and a catheter was pretty eaſily introduced, through the concealed penis, into it. The ſpleen was ſmall in its natural ſituation, and ſound. The meſenteric glands were numerous, large, hardened, and ſurrounded with a fat of a deep yellow, as was the pancreas; no omentum appeared; its place ſeemed ſupplied by the fat, interſperſed among the glands, and pancreas. The teſtes were of a natural ſize, but looſe and flabby, and had many varicoſe veins upon their ſurface: the right, which was ſo much out of its proper place, was the leaſt, and laxer of the two: the ſpermatic veſſels belonging to it were large, through the great length they ran. The ſac and inteſtines were adherent, almoſt at every point of their contact; in ſome places ſo firmly, that they were with great

difficulty ſeparated, and often not without danger of tearing: the inteſtines alſo adhered in the ſame manner, to one another; all, by means of a firm cellular membrane. The containing bag was very firm, thick and ſtrong, as obſerved before. Its aperture, at the right ring from the abdomen, was ſo wide, as readily to allow a middle-ſized hand to paſs through it, from the abdomen, for a ſmall ſpace, betwixt its anterior edge, and the convolutions of the lower extremity of the ſtomach, and the ſemi-circular turn it made to the pylorus, with the beginning of the duodenum from thence, and the other extremity of the duodenum, before the jejunum commenced, and that part of the colon which returned into the pelvis; all of which were lodged in the very aperture: ſo that the ſpace left unoccupied by theſe parts could not be much leſs than 8 inches in circumference: notwithſtanding which, very little of a watery fluid was found in the ſac: indeed it would not have had a very eaſy admittance, from the many adheſions formed betwixt the ſac and its contained parts, a little below the opening from the abdomen.

The above is a tedious perhaps, but a circumſtantial, and juſt repreſentation of this extraordinary caſe: which I ſhall not, at preſent, lengthen by deductions or reaſonings; farther, than to admire the exquiſite compoſition of that moſt admirably formed machine, which could bear ſo great an alteration in its parts, without a manifeſt impediment to its moſt material actions: ſeeing here, life, and even health, went happily on, through a great length of years, though the whole ſyſtem almoſt of the inteſtines had been, for many of theſe years, without the reach of the action

action of the diaphragm and abdominal muſcles, and of the fotus of their generally neighbouring parts: requiſites, as has been imagined, towards the carrying on their ſeveral functions, for the benefit of the animal oeconomy.

George Carliſle.

Received May 12, 1766.

XIX. *Three Papers, containing Experiments on factitious Air, by the Hon.* Henry Cavendiſh, *F. R. S.*

Read May 29, Nov. 6. and Nov. 13, 1766.

BY factitious air, I mean in general any kind of air which is contained in other bodies in an unelaſtic ſtate, and is produced from thence by art.

By fixed air, I mean that particular ſpecies of factitious air, which is ſeparated from alcaline ſubſtances by ſolution in acids or by calcination; and to which Dr. Black has given that name in his treatiſe on quicklime.

As fixed air makes a conſiderable part of the ſubject of the following papers; and as the name might incline one to think, that it ſignified any ſort of air which is contained in other bodies in an unelaſtic form; I thought it beſt to give this explanation before I went any farther.

Before

Fig. 1.

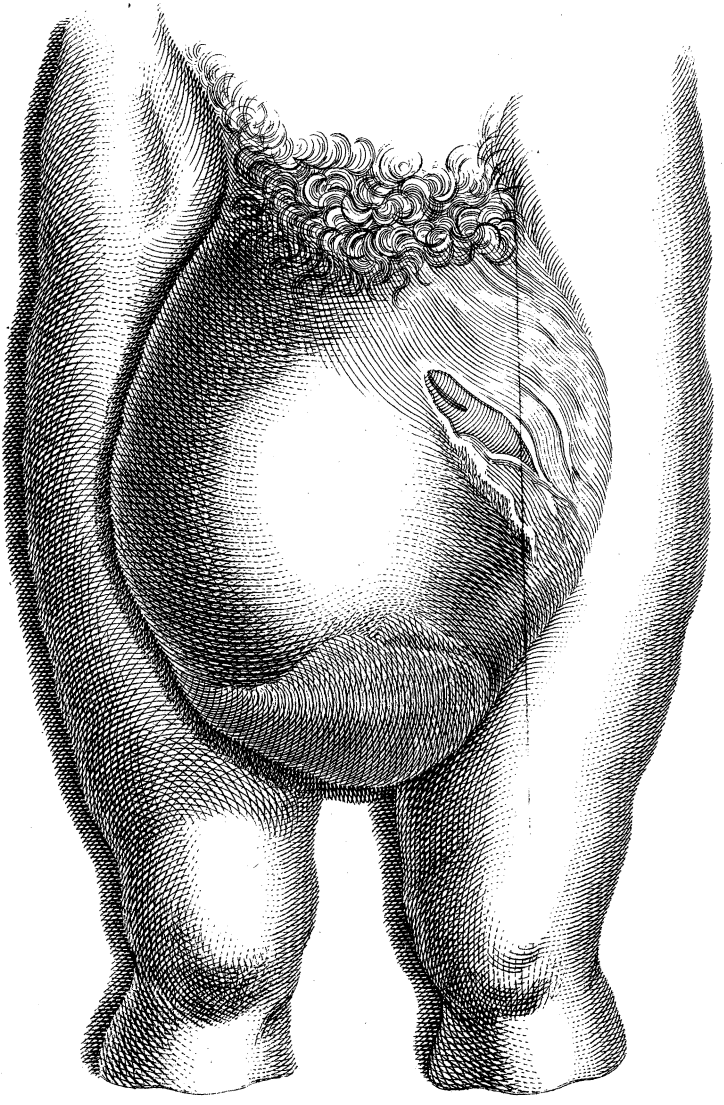

Fig. 2.